Legislation Text

File #: 16-0697, **Version:** 1

First Report of the *mcr-1* Gene in a Patient in the United States (US) - Pfister

In May of this year, the Department of Defense (DoD) announced the discovery of the first mcr-1 gene found in E. coli bacteria in a US patient. The *mcr-1* gene made the *E. coli* bacteria carrying it resistant to the antibiotic Colistin. This antibiotic is used as a last-resort drug to treat patients with multi-drug-resistant infections.

This finding is important as it was only in November 2015 that scientists in China first reported the *mcr-1* gene discovery. Following the revelation in China, the resistant bacteria have since been identified in Europe and Canada. This gene exists on a plasmid, a small piece of DNA, which is capable of moving from one bacterium to another spreading antibiotic resistance.

In the US, this gene was found in a urine sample from a Pennsylvania woman with no recent travel outside the US. The investigation revealed the identified bacteria are not resistant to all antibiotics (referred to as a pan-resistant infection). However, the presence of this gene and its ability to share its Colistin resistance with other bacteria raise the risk that pan-resistant bacteria could develop.

The patient was treated in an outpatient military treatment facility in Pennsylvania. The investigation is now focused on identifying close contacts of the patient, including household and clinical contacts, to determine whether they may have been at risk.

Just over a year ago, President Obama released a National Action Plan for Combating Antibiotic Resistant Bacteria and as part of that plan he charged DoD, USDA and Department of Health and Human Services (HHS) with co-chairing a Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria. In the past year, those three agencies and the Council made new discoveries, and undertook new research to preserve the effectiveness of antibiotics. A USDA and HHS search for Colistin-resistant bacteria in food animals, retail meats and people also found this strain in a single sample from a pig intestine.

At the same time, the National Antimicrobial Resistance Monitoring System is continuing its search for evidence of Colistin-resistant bacteria in the United States. Although the findings of a pig intestine suggest that *mcr-1*-mediated Colistin resistance might be rare, HHS and USDA remind consumers that cooking all meat, poultry and fish to its proper internal temperature kills bacteria, viruses and other foodborne pathogens, whether or not they are antibiotic-resistant.

Beginning in fall 2016, CDC's Antibiotic Resistance Lab network will provide the infrastructure and lab capacity to detect and respond to resistant organisms recovered from human samples. CDC, FDA, USDA, DoD and other government agencies will continue efforts to track, slow and respond to the emergence of antibiotic resistance. In Illinois, IDPH provided guidance to health care providers, facilities and laboratories on *mcr-1* gene surveillance and reporting, and submission of Isolates to the IDPH lab. LCHD/CHC fax broadcast that guidance to the providers in Lake County.

None, for information only.